REMARKS

This response is presented in response to the Office Action mailed November 4, 2002 (hereinafter referred to as "the Office Action"). Amendments made herein are in accordance with the permissive rules signed by Steven Kunin, Deputy Commission for Patent Examination Policy (see http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/revamdtprac.htm) on January 31, 2003.

OBJECTION TO THE DRAWINGS

Section 1 of the Office Action objected to the drawings. In particular, the Office Action indicated that Figures 3, 14, and 23 should be designated by a legend such as --PRIOR ART-- because "only that which is old is illustrated." The Office Action required correction. Enclosed is a new Figure 23, which is substantially the same as the old Figure 23, except that the legend ***(Prior Art)*** has been added. Applicants respectfully disagree with the assertion that Figures 3 and 14 illustrate only that which is old.

As described in the specification, Figure 23 illustrates prior art technology which carries out transmission power control at every slot interval, and carries out channel estimation of data symbols for securing SNIR against interference signals by cross-correlation from other users, and following instantaneous Rayleigh fluctuations. A channel estimation value is obtained by averaging pilot symbols in a plurality of slots before and after the slot to which the data symbols to be subjected to the channel estimation belong, and taking the weighted sum of the average values using weighting factors α_0, α_1 and so on. This method assumes that the channel fluctuations in each slot are small, and employs the same weighting factors α for all the data symbols in each slot to obtain the same channel estimation value (see Applicants' Specification, page 3, line 25 to page 5,line 23).

Thus, in high rate fading, displacements of phases by Doppler shift occur and summation of the above-mentioned signals which are regarded as in phase cannot be carried out accurately. Therefore, channel fluctuations (fading phase fluctuations) in a data symbol sequence are compensated for by multiplying the data symbol sequence by the complex conjugates of the channel estimation values.

In contrast, Figure 3 is a figure for explaining the first embodiment of the present invention (also used in the second to the fourth embodiments, see page 6, lines 12 -14 of the Applicants' specification). Also in contrast, Figure 14 is a figure for explaining the fifth embodiment of the present invention (also used in the sixth to the eighth embodiments, see page 8, lines 11-14 of the Applicants' specification). The embodiments shown in Figures 3 and 14 are different from the prior art shown in Figure 23 in the weighted sum process using weighting factors α.

Accordingly, Applicants respectfully request withdrawal of the objection to the drawings in light of the amendment to Figure 23 made herein, and further in light of these explanatory remarks regarding Figures 3 and 14.

OBJECTION TO THE SPECIFICATION

Section 4 of the Office Action required correction of the heading "Disclosure of the Invention" to "Summary of the Invention". The appropriate correction has been made herein.

35 U.S.C. 102(e) REJECTION

Section 5 of the Office Action rejected all of the pending Claims 1-19 under 35 U.S.C. 102(e) as being anticipated by United Stated Patent No. 5,694,388 to Sawahashi et al. (hereinafter referred to as "Sawahashi").

When obtaining channel estimation values by calculating a weighted sum of average values of pilot symbols in pilot blocks, the present invention of claim 1 controls the weighting in response to a rate of channel fluctuations. Thereby, resistance to channel fluctuations (fading fluctuations) can be improved and highly accurate channel estimation can be carried out.

The Office Action asserts that "means for obtaining channel estimation values" of claim 1 corresponds to block 161 of Fig. 14 of Sawahashi and "means for controlling the weighting of claim 1" corresponds to block 110 of Fig. 5, and block 110T and 150 of Fig. 14 of Sawahashi.

However, the block 150 of Fig. 14 (RAKE combiner) has nothing to do with control of weighting **in the context of being in response to a rate of the channel fluctuations**. Also, the block 110T of Fig. 14 (tap coefficient controller) is a controller for controlling the tap coefficient of the orthogonal filter 103T, and not a controller for controlling the averaging of the pilot channel phase error estimating/averaging block 161. Even if the Examiner intended to say that "means for controlling the weighting" corresponds to the block 110P of Fig. 14 instead of the block 110T, the block 110P (tap coefficient controller) is a controller for controlling the tap coefficient of the orthogonal filter 103P, and not a controller for controlling the averaging of the pilot channel phase error estimating/averaging block 161. The same thing can be said for the block 110 of Fig. 5 (tap coefficient controller).

Therefore, Sawahashi does not disclose nor suggest features of the present invention of claim 1 since Sawahashi does not teach that the weighting is controlled in response to channel or fading fluctuations when obtaining channel estimation values by calculating a weighted sum of average values of pilot symbols in pilot blocks. Accordingly, claim 1 provides the advantage of providing improved resistance to channel fluctuations thereby further allowing for highly

accurate channel estimation. Accordingly, Claim 1 is not anticipated by Sawahashi for at least the reasons provided herein[1].

The other independent claims 8, 16, 17, 18 and 19 also recite "means for obtaining" or simply "obtaining" "channel estimation values by calculating a weighted sum of average values of the pilot symbol [included] in the pilot blocks" and a "means for controlling" or "wherein the weighting is controlled" "in response to a rate of the channel fluctuations." Accordingly, these independent claims are also not anticipated by Sawahashi for at least the same reasons provided above for claim 1. The remaining claims depend, directly or indirectly, from one of these independent claims, and thus are not anticipated by Sawahashi for at least the reasons that their corresponding independent claim is not anticipated by Sawahashi.

Accordingly, favorable action is respectfully requested. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

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[1] In order to overcome an anticipation rejection, it is not necessary to point out all of the recited features of the claim that are not described by the cited reference. Applicants therefore reserve the right to argue further reasons why the claims are not anticipated by the reference if the course of prosecution so warrants. Accordingly, Applicants' lack of statement as to whether a recited element is described by the reference should not be construed as acquiescence that Applicants' concede that the recited element is described by the reference.

Dated this 4th day of February, 2003.

Respectfully submitted,

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